Air Force Research Laboratory | AFRL
Science and Technology for Tomorrow's Aerospace Forces

Success Story

PROPULSION DIRECTORATE RESEARCHER WINS YATES TECH TRANSFER AWARD

Ms. Sandra Fries-Carr of the Propulsion directorate's Electrical Technology and Plasma Physics Branch, won the prestigious General Ronald W. Yates Award for Excellence in Technology Transfer. Transfer of the Directorate's fluorene polyester (FPE) high-performance capacitor dielectric material fills a critical need for advanced, high-performance capacitors for military applications, while providing a low-cost solution for multiple applications in commercial products.

Air Force Research Laboratory
Wright-Patterson AFB OH

Accomplishment

The Air Force Materiel Command recognized Ms. Fries-Carr for her work in leading the development, transition, and transfer of the FPE capacitor dielectric material. These films will dramatically increase the performance, reliability, and applicability of the capacitors upon which modern commercial and military electric systems rely.

Ms. Fries-Carr responded to the need for a better performing capacitor material by initiating a program with industry to develop and produce a capacitor film to meet high-performance military requirements. This effort involved over 17 organizations—2 government and 15 commercial enterprises.

Background

While the military requires high-performance capacitors to satisfy mission requirements, the military is a low-volume user compared to commercial applications. Capacitor and capacitor film manufacturers are reluctant to develop capacitors or film to meet these requirements as long as their current capacitors satisfy high volume commercial customer applications. Also, the manufacturer was ready to discontinue a popular, high-performance film, leaving several military applications without a suitable replacement.

The directorate worked with film producers, as well as capacitor manufacturers, for several years to produce a capacitor-grade, 12-micron film. This film has a high-temperature capability of 250ºC (two times the current state-of-the-art) and twice the breakdown strength of current, high-performance films.

A need also exists for thinner films in the 2- to 6-micron range for certain applications. The directorate is currently testing this film. Their efforts resulted in one firm producing the casting process for these thinner films and two other firms using the casting process in a production mode.

Propulsion
Awards and Recognition

Additional information

To receive more information about this or other activities in the Air Force Research Laboratory, contact TECH CONNECT, AFRL/XPTT, (800) 203-6451 and you will be directed to the appropriate laboratory expert. (01-PR-05)